

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) A system, comprising:

detection circuitry;

energy delivery circuitry capable of delivering a plurality of cardiac therapies comprising at least a tachycardia therapy, a bradycardia therapy, and an asystole prevention therapy;

therapy instructions stored in the energy delivery circuitry, the therapy instructions executable to direct delivery of the plurality of cardiac therapies;

one or more electrodes configured for subcutaneous, non-intrathoracic placement and for coupling to the detection circuitry and energy delivery circuitry;

detection circuitry configured to receive cardiac signals using the one or more electrodes and detect a tachycardia condition, a bradycardia condition, and an asystole condition using the cardiac signals; and

a controller coupled to the detection circuitry and energy delivery circuitry, the controller, in response to a cardiac condition requiring treatment, executing at least some of the therapy instructions to coordinate delivery of a selected one of the tachycardia, bradycardia, and asystole prevention therapies, the asystole prevention therapy being delivered at a rate below that of the bradycardia therapy and at 20 pulses per minute or less upon detection of the asystole condition.

2. (Original) The system of claim 1, wherein the plurality of cardiac therapies comprises a bradycardia pacing therapy.

3. (Original) The system of claim 1, wherein the plurality of cardiac therapies comprises a cardiac resynchronization therapy.

4. (Original) The system of claim 1, wherein the plurality of cardiac therapies comprises an antitachycardia pacing therapy.
5. (Original) The system of claim 1, wherein the plurality of cardiac therapies comprises a defibrillation therapy.
6. (Original) The system of claim 1, wherein the plurality of cardiac therapies comprises a rate smoothing pacing therapy.
7. (Original) The system of claim 1, wherein the plurality of cardiac therapies comprises a sub-threshold stimulation therapy.
8. (Original) The system of claim 1, wherein the one or more electrodes are configured for cardiac pacing and sensing.
9. (Withdrawn) The system of claim 1, further comprising a housing within which the detection circuitry, energy delivery circuitry, and controller are situated, wherein the housing is configured for patient-external placement.
10. (Withdrawn) The system of claim 9, wherein the housing comprises one or more electrodes coupled to the detection circuitry and energy delivery circuitry.
11. (Withdrawn) The system of claim 9, further comprising one or more surface electrodes configured for coupling to the detection circuitry and energy delivery circuitry.
12. (Withdrawn) The system of claim 9, further comprising a coupling arrangement configured to couple and de-couple the one or more electrodes to and from the detection circuitry and energy delivery circuitry.

13. (Original) The system of claim 1, further comprising a housing within which at least one of the detection circuitry, energy delivery circuitry, and controller is situated, wherein the housing is configured for implantation in a patient.

14. (Original) The system of claim 13, wherein the one or more electrodes comprises at least one electrode disposed in or on the housing.

15. (Currently amended) The system of claim 1, wherein the asystole prevention therapy comprises delivery of no more than ten pacing pulses at a rate varying between about 2 and about 40 pulses per minute.

16. (Previously presented) The system of claim 1, wherein the asystole prevention therapy comprises delivery of pacing pulses at a rate insufficient to restore full patient consciousness.

17. (Canceled).

18. (Original) The system of claim 17, wherein the rate lower than the pacing rate is a fixed rate or a variable rate.

19. (Original) The system of claim 1, further comprising a housing within which the detection circuitry, energy delivery circuitry, and controller are situated, wherein the housing is configured for implantation in a patient and the one or more electrodes are disposed in or on the housing to define a unitary structure.

20. (Original) The system of claim 19, wherein the housing is configured to have an arcuate shape.

21. (Currently amended) A system, comprising:

a housing configured for subcutaneous, non-intrathoracic placement; detection circuitry provided in the housing; energy delivery circuitry provided in the housing and capable of delivering each of a tachycardia therapy, a bradycardia therapy, and an asystole prevention therapy; therapy instructions stored in the energy delivery circuitry, the therapy instructions executable to direct delivery of the tachycardia therapy, the bradycardia therapy, and the asystole prevention therapy, the asystole prevention therapy comprising a pacing rate lower than that associated with the bradycardia therapy and 20 pulses per minute or less; one or more electrodes configured for subcutaneous, non-intrathoracic placement and coupled to the detection circuitry and energy delivery circuitry; detection circuitry configured to receive cardiac signals using the one or more electrodes and detect a tachycardia condition, a bradycardia condition, and an asystole condition using the cardiac signals; and a controller provided in the housing and coupled to the detection circuitry and energy delivery circuitry, the controller, in response to a cardiac condition requiring treatment, executing at least some of the therapy instructions to direct delivery of a selected one of the tachycardia, bradycardia, and asystole prevention therapies in response to detection of a corresponding one of the tachycardia condition, the bradycardia condition, and the asystole condition, respectively.

22. (Previously presented) The system of claim 21, wherein the the bradycardia therapy comprises a bradycardia pacing therapy.

23. (Previously presented) The system of claim 21, wherein the therapy instructions are executable to direct delivery of a cardiac resynchronization therapy.

24. (Previously presented) The system of claim 21, wherein the therapy instructions are executable to direct delivery of an antitachycardia pacing therapy.

25. (Previously presented) The system of claim 21, wherein the therapy instructions are executable to direct delivery of a defibrillation therapy.
26. (Previously presented) The system of claim 21, wherein the therapy instructions are executable to direct delivery of a rate smoothing pacing therapy.
27. (Previously presented) The system of claim 21, wherein the therapy instructions are executable to direct delivery of a sub-threshold stimulation therapy.
28. (Original) The system of claim 21, wherein the one or more electrodes are configured for cardiac pacing and sensing.
29. (Original) The system of claim 21, wherein the one or more electrodes comprises at least one electrode disposed in or on the housing.
30. (Original) The system of claim 21, wherein the asystole prevention therapy delivered by the energy delivery circuitry comprises delivery of pacing pulses at a rate insufficient to restore full patient consciousness.
31. (Currently amended) The system of claim 21, wherein the asystole prevention therapy delivered by the energy delivery circuitry comprises delivery of no more than ten pacing pulses at a rate lower than a pacing rate associated with the bradycardia therapy.
32. (Original) The system of claim 31, wherein the rate lower than the pacing rate is a fixed rate or a variable rate.
33. (Original) The system of claim 21, wherein the one or more electrodes are disposed in or on the housing to define a unitary structure.

34. (Original) The system of claim 33, wherein the housing is configured to have an arcuate shape.

35. (Original) The system of claim 21, wherein the one or more electrodes comprise at least one subcutaneous, non-intrathoracic electrode array.

36. (Original) The system of claim 35, wherein the at least one subcutaneous, non-intrathoracic electrode array is coupled to the housing via a lead.

37. (Currently amended) A method, comprising:

sensing cardiac activity from a subcutaneous, non-intrathoracic location;
detecting one of a plurality of cardiac conditions, each cardiac condition necessitating treatment in response to the sensed cardiac activity, the plurality of cardiac conditions comprising a tachycardia condition, a bradycardia condition, and an asystole condition; and
delivering, in response to detecting a corresponding one of the plurality of cardiac conditions, one of a plurality of available cardiac therapies to treat the detected corresponding cardiac condition, the plurality of cardiac therapies comprising at least a tachycardia therapy, a bradycardia therapy, and an asystole prevention therapy, the asystole prevention therapy comprising a pacing rate lower than that associated with the bradycardia therapy and 20 pulses per minute or less.

38. (Original) The method of claim 37, wherein the plurality of cardiac therapies comprises a bradycardia pacing therapy.

39. (Original) The method of claim 37, wherein the plurality of cardiac therapies comprises a cardiac resynchronization pacing therapy.

40. (Original) The method of claim 37, wherein the plurality of cardiac therapies comprises an antitachycardia pacing therapy.
41. (Original) The method of claim 37, wherein the plurality of cardiac therapies comprises a defibrillation therapy.
42. (Original) The method of claim 37, wherein the plurality of cardiac therapies comprises a rate smoothing pacing therapy.
43. (Original) The method of claim 37, wherein the plurality of cardiac therapies comprises a sub-threshold stimulation therapy.
44. (Previously presented) The method of claim 37, wherein detecting comprises detecting the one of the plurality of cardiac conditions at a subcutaneous, non-intrathoracic location.
45. (Withdrawn) The method of claim 37, wherein detecting comprises detecting the cardiac condition at a patient-external location.
46. (Withdrawn) The method of claim 37, wherein energy for the plurality of cardiac therapies is provided from a patient-external source.
47. (Original) The method of claim 37, wherein energy for the plurality of cardiac therapies is provided from a subcutaneous, non-intrathoracic source.
48. (Original) The method of claim 37, wherein delivering the plurality of cardiac therapies comprises delivering monophasic waveforms.
49. (Original) The method of claim 37, wherein delivering the plurality of cardiac therapies comprises delivering multiphasic waveforms.

50. (Currently amended) A system, comprising:

means for sensing cardiac activity from a subcutaneous, non-intrathoracic location;

means for detecting one of a plurality of cardiac conditions, each cardiac condition necessitating treatment in response to the sensed cardiac activity, the plurality of cardiac conditions comprising a tachycardia condition, a bradycardia condition, and an asystole condition; and

means for delivering, in response to detecting a corresponding one of the plurality of cardiac conditions, one of a plurality of cardiac therapies to treat the detected corresponding cardiac condition, the plurality of cardiac therapies comprising at least a tachycardia therapy, a bradycardia therapy, and an asystole prevention therapy, all of which can be delivered by the system, the asystole prevention therapy comprising a pacing rate lower than that associated with the bradycardia therapy and 20 pulses per minute or less.

51. (Original) The system of claim 50, wherein the plurality of cardiac therapies comprises a bradycardia pacing therapy.

52. (Original) The system of claim 50, wherein the plurality of cardiac therapies comprises a cardiac resynchronization pacing therapy.

53. (Original) The system of claim 50, wherein the plurality of cardiac therapies comprises an antitachycardia pacing therapy.

54. (Original) The system of claim 50, wherein the plurality of cardiac therapies comprises a defibrillation therapy.

55. (Original) The system of claim 50, wherein the plurality of cardiac therapies comprises a rate smoothing pacing therapy.

56. (Original) The system of claim 50, wherein the plurality of cardiac therapies comprises a sub-threshold stimulation therapy.

57. (Previously presented) The system of claim 50, wherein the detecting means comprises means for detecting the one of the plurality of cardiac conditions at a subcutaneous, non-intrathoracic location.

58. (Withdrawn) The system of claim 50, wherein the detecting means comprises means for detecting the cardiac condition at a patient-external location.

59. (Withdrawn) The system of claim 50, further comprising means for supplying energy for the plurality of cardiac therapies from a patient-external source.

60. (Original) The system of claim 50, further comprising means for supplying energy for the plurality of cardiac therapies from a subcutaneous, non-intrathoracic source.

61. (Original) The system of claim 50, wherein the delivering means comprises means for delivering monophasic waveforms.

62. (Original) The system of claim 50, wherein the delivering means comprises means for delivering multiphasic waveforms.